

GRANITE CITY ILLINOIS AREA PM-10  
MAINTENANCE PLAN

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## I. BACKGROUND

Section 107(d)(4)(B)(ii) of the Clean Air Act, as amended in 1990 (CAA), required, by operation of law, all areas containing sites for which air quality monitoring data showed a violation of the National Ambient Air Quality Standard (NAAQS) for PM-10 before January 1, 1989, to be designated as nonattainment for PM-10. Particulate matter is solid or liquid material existing in the form of particles so small as to remain suspended in the ambient atmosphere. PM-10 is that particulate matter with a nominal aerodynamic diameter of ten micrometers or less.

Pursuant to the CAA, by operation of law, the Granite City, Illinois area was designated as a PM-10 nonattainment area. It includes Granite City and Nameoki Townships in Madison County, Illinois. (See: 55 FR 45802-3, October 31, 1990). On November 6, 1991, the United States Environmental Protection Agency (USEPA) published a final listing of area designations (56 FR 56753).

Granite City proper and much of Nameoki Township is a heavily industrialized area. There are 23 inventoried sources in the area including metallurgical industries, other types such as slag processing, food manufacturing, and chemical, as well as, several shipping terminals. Most of these industries have experienced little growth. However, several of the largest plants are expanding. Before a production increase can be permitted, simultaneous PM-10 emission reductions to protect PM-10 air quality must occur because of the nature of the emissions at these plants.

In order to develop the PM-10 State Implementation Plan (SIP) for Granite City, IEPA conducted modeling studies of more than 270 emission units at the 23 sources in the Granite City area. Additional emission limits were developed, including more stringent mass emission limits for emission units with stacks and opacity limits for emission units without stacks (fugitive

emissions) that would when complied with assure attainment and maintenance of the PM-10 NAAQS in the Granite City nonattainment area.

The proposed rules, containing the new emissions limits, were submitted to the Illinois Pollution Control Board (Board) on August 14, 1991. Public hearings on the proposal were held on October 23 and 29, 1991, and the final rules were adopted by the Board on April 9, 1992. The rules became effective May 11, 1992.

The SIP revision containing the new rules was submitted to USEPA on May 15, 1992, and it was conditionally approved on November 18, 1994 (59 FR 59653). A SIP submittal was also needed to address contingency measures as required by Section 172(c)(9) of the CAA. On June 23, 1994, the Board adopted such a program, and USEPA deemed the submittal complete on December 9, 1994 and approved this submittal on July 13, 1995 (60 FR 36062).

## II. REDESIGNATION OF THE AREA

Section 107(d)(3) of the CAA, as amended in 1990, states that an area can be redesignated to attainment. This document has been prepared to fulfill the requirements for a maintenance plan and the document explains that Illinois has satisfied the conformity requirements of Section 176 of the CAA. It meets with USEPA's most recent requirements for a maintenance plan.

### A. Maintenance Plan Requirement 1 -- Attainment Inventory

#### 1. USEPA Guidance

The State must develop an attainment emissions inventory to identify the level of emissions in the area sufficient to attain the NAAQS. This inventory should be consistent with USEPA's most recent guidance on emission inventories for nonattainment areas available at the time and should

include the emissions during the time period associated with the monitoring data showing attainment.

For PM-10, the source size threshold is 25 tons/year, based upon 40 CFR 51.100(k) and 51.322, and established practice for Aerometric Information Retrieval System (AIRS) data. Where smaller sources have been included in the SIP attainment demonstration, size thresholds should include even those below 25 tons/year. Where sources below the 25 ton/year threshold are subject to a State's minor source permit program, these sources need not be individually addressed in the maintenance plan, only in the aggregate to the extent that they result in area wide growth.

USEPA redesignation policy requires at least three consecutive years wherein the number of expected 24-hour exceedances per year, according to 40 CFR 50.6, is less than or equal to 1.0 before an area can be redesignated to attainment.

## 2. Illinois Response

The emissions inventory for the Granite City area was prepared consistent with all Federal Guidance. The current inventory, generated as explained in the May 1992 SIP submittal, which defines the inventory process, shows annual actual PM-10 emissions of 820 tons for the Granite City area. The annual allowable PM-10 emissions are 2,756 tons. The difference between the actual and allowable emissions estimates reflects that the emission units usually operate at less than full process weight rate and a large number of sources overcomply.

In addition, the expected number of exceedances per year of the 24-hour PM-10 NAAQS in each three-year period since

1990 has been less than 1.0 because there have been no exceedances since that year. Attachment 1.a provides the highest 24-hour PM-10 concentrations at the state/local air monitoring station (SLAMS) and the national air monitoring stations (NAMS) for both the 1992-1994 and 1993-1995 three-year periods.

Attachment 1.a also addresses the annual PM-10 NAAQS by giving the annual average concentrations at those stations. The greatest number of expected exceedances in a three-year period and highest three-year expected annual average were 0.0 and 47 ug/m<sup>3</sup> respectively. The level of the 24-hour NAAQS is not more than one expected exceedance per year in a three-year period, and the level of the three-year average annual NAAQS is 50 ug/m<sup>3</sup>.

As indicated in Attachment 1.a, one data set collected in Granite City at 15th Street and Madison Avenue in 1994 was one sample short of capturing enough data to constitute a complete annual average pursuant to 40 CFR 50, Appendix K. In 1994, 93% of the possible samples were collected despite not being able to monitor from January 20 through February 5. To demonstrate that the missing data has no significant impact on the level of the annual PM-10 concentration at that site, an assessment was made assuming worst case concentrations for that data. Even if the one missing day registered an exceptionally high 24-hour average of 250 ug/m<sup>3</sup> (more than twice any such average recorded during the 1992-1994 period), there would have been no exceedance of the annual air quality standard at that site.

## B. Requirement 2 -- Maintenance Demonstration

### 1. USEPA Guidance

A State may demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant (i.e., 10 years following redesignation) or its precursors will not exceed the level of the attainment inventory, or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS. The selection of the appropriate approach depends on a number of factors, including the pollutant of concern and the classification of the area.

Where modeling is required to demonstrate maintenance, each plan should contain a summary of the air quality concentrations expected to result from application of the control strategy. In the process, the plan should identify and describe the dispersion model or other air quality model used to project ambient concentrations. (40 CFR Part 51.46)

In either case, the demonstration will require the State to project emissions for the 10-year period following redesignation, either for the purpose of showing that emissions will not increase over the attainment inventory or for conducting modeling. The projected inventory should consider future growth, including population and industry, should be consistent with the attainment inventory, and should document data inputs and assumptions. All elements of the demonstration (e.g., emission projections, new source growth, and modeling) should be consistent with current USEPA modeling guidance.

## 2. Illinois Response

Emissions are not expected to substantially increase in the next ten years even though some industries are expanding. Owners of larger industries will be required to obtain offsets because of prevention of significant deterioration

(PSD) requirements that help maintain the NAAQS. Currently, actual emissions in the area are approximately 820 TPY, i.e., about 30% of the allowable emissions. Thus, at many locations emissions could increase without threatening the NAAQS for PM-10.

At most locations, however, emissions can not increase significantly because of the restrictions of 35 Ill. Adm. Code Part 212 (Visible and Particulate Matter Limitations) which have been incorporated into the Illinois SIP. (Attachment 1.b) Further, new stationary sources or new emission units will be subject to PSD requirements which insure that future emissions will be restricted within limits that guarantee continued attainment. IEPA was delegated authority to administer the USEPA PSD regulations on January 29, 1981 (46 FR 9584).

Currently a major expansion of production is taking place at the Granite City Steel Division of National Steel Corporation. Because of significant emission reductions beyond SIP requirements undertaken by the company, this expansion will not entail any increases in PM-10 emissions. In addition, at Spectrulite Consortium, Inc., a small production increase is planned. The company has demonstrated that there will be no adverse effect on air quality.

### C. Requirement 3 -- Monitoring Network Requirement

#### 1. USEPA Guidance

Once an area has been redesignated, the State must continue to operate an appropriate air quality network to verify the attainment status of the area (40 CFR Part 58). The

maintenance plan should contain provisions for continued operation of air quality monitors that will provide such verification.

## 2. Illinois Response

The IEPA operates three NAMS and one SLAMS PM-10 monitors in the nonattainment area, and their locations are shown on Attachment 1.a. The SLAMS station is the one located at 2420 Nameoki Road. Since 1979, continued operation of these sites has been approved annually by USEPA in accordance with 40 CFR 58, Subpart D requirements. The IEPA will continue operation of those monitors. Any future changes will be submitted to USEPA for formal approval consistent with the SLAMS/NAMS network requirements and Illinois' SIP for ambient air quality monitoring.

### D. Requirement 4 -- Verification of Continued Attainment

#### 1. USEPA Guidance

Each State should ensure that it has the legal authority to implement and enforce all measures necessary to attain and to maintain the NAAQS. Sections 110(a)(2)(B) and (F) of the CAA and regulations promulgated at 40 CFR Part 51.110(k), suggest that one such measure is the acquisition of ambient air quality data and source emissions data to demonstrate attainment and maintenance.

Regardless of whether the maintenance demonstration is based on a showing that future emission inventories will not exceed the attainment inventory or based on modeling results, the State SIP submittal should indicate how the State will track the progress of the maintenance plan. This is necessary because the emission projections made for



the maintenance demonstration depend on assumptions of point and area source growth.

One option for tracking the progress of the maintenance demonstration would be for the State to periodically update the emissions inventory. The maintenance plan should specify the frequency of any planned inventory updates. Such an update could be based, in part, on the annual AIRS update and could indicate new source growth and other changes from the attainment inventory (e.g., changes in vehicle miles traveled or in traffic patterns). As an alternative to a complete update of the inventory, the State may choose to do a comprehensive review of the factors that were used in developing the attainment inventory to show no significant change. If this review does show a significant change, the State would then be expected to perform an update of the inventory. Where the demonstration is based on modeling, the State may periodically (typically every 3 years) reevaluate the modeling assumptions and input data. In any event, the State should monitor the indicators for triggering contingency measures.

## 2. Illinois Response

Illinois has the legal authority to implement and enforce all measures necessary to attain and maintain the NAAQS. Illinois will assure continued maintenance of the Granite City area by showing that future emissions inventories will not exceed the attainment inventory. IEPA has a duty under Section 4(b) of the Illinois Environmental Protection Act [415 ILCS 5/4(b)(Act)] to ascertain information from any air contaminant source which may cause or contribute to air pollution (Attachment 1.c). Under this authority, the IEPA developed administrative rules which require the annual reporting of PM-10 emissions, as well as all other

regulated contaminants from all sources required to have permits. Attachment 1.d, 35 Ill. Adm. Code Sections 254.204 and 254.403).<sup>1</sup>

In addition, the IEPA updates the emissions inventory by conducting periodic source inspections by the Field Operations Section (FOS). FOS has typically inspected all major sources and many minor sources with a frequency that depends on the amount of emissions emitted by the source and its history of compliance with emission limitations. Those largest sources, accounting for about 95% of emissions, are typically inspected at least annually, and other major and selected minor sources are inspected at a lower frequency. This ongoing procedure allows the emission inventory to be updated each time an inspection indicates the need for a revision. Furthermore, significant modifications to a Clean Air Act Permit Program (CAAPP) permit must be approved by IEPA. This is also true for any source subject to PSD and for sources subject to only the Illinois State permitting program.

If inspections indicate a need for enforcement or for more stringent emission limits, the IEPA has a duty is to refer such matters to the Illinois Pollution Control Board. The Board, rather than IEPA, has the authority to execute enforcement actions, pursuant to Section 5(d) of the Act [415 ILCS 5/5(d)]. The IEPA may also propose more stringent emission standards to the Board which has the authority to promulgate rules pursuant to Section 5(b) of the Act [415 ILCS 5/5(b)] (Attachment 1.c).

#### E. Requirement 5-Contingency Plan

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<sup>1</sup>These rules were approved by USEPA as part of the Illinois SIP on September 9, 1993 at 58 FR 47379-47383.

## 1. USEPA Guidance

Section 175A of the CAA also requires that a maintenance plan include contingency provisions, as necessary, to promptly correct any violation of the NAAQS that occurs after redesignation of the area. These contingency measures are distinguished from those generally required for nonattainment areas under Section 172(c)(9) of the CAA.

For the purpose of Section 175A of the CAA, a State is not required to have fully adopted contingency measures that will take effect without further action by the State in order for the maintenance plan to be approved. However, the contingency plan is considered to be an enforceable part of the SIP and should ensure that the contingency measures are adopted expediently once they are triggered. The plan should clearly identify the measures to be adopted, a schedule and procedure for adoption and implementation and a specific time limit for action by the State. The State should identify specific indicators, or triggers, which will be used to determine when the contingency measures need to be implemented.

Where the maintenance demonstration is based on the inventory, the State may, for example, identify an "action level" of emissions as the indicator. If later inventory updates show that the inventory has exceeded the action level, the State would take the necessary steps to implement the contingency measures. The indicators would allow a State to take early action to address possible violations of the NAAQS before they occur. By taking early action, States may be able to prevent any actual violations of the NAAQS and, therefore, eliminate the need on the part of EPA to redesignate an area to nonattainment.

Other indicators to consider include monitored or modeled violations of the NAAQS (due to the inadequacy of monitoring data in some situations). It is important to note that air quality data in excess of the NAAQS will not automatically necessitate a revision of the SIP where implementation of contingency measures is adequate to address the cause of the violation. The need for a SIP revision is subject to the Administrator's discretion.

## 2. Illinois Response

Illinois will meet the contingency requirements of Section 175A of the CAA as described below. Illinois has authority to correct any violation of the NAAQS that occurs after redesignation to attainment of the Granite City PM-10 area. This authority is described above in the Illinois response to the "Maintenance Demonstration" guidance.

As required by Section 175A(d) of the CAA, Illinois is implementing all measures contained in the nonattainment SIP. All emission units in the area are operating in accordance with the approved SIP for PM-10 emission limitations designed to insure attainment and maintenance of the NAAQS. The State is fulfilling all of its air quality monitoring and source inspection mandates so as to verify continued compliance.

The PM-10 monitoring data are read regularly, and IEPA continues its ongoing practice of routine source inspection for emission compliance status at a frequency determined by emissions magnitude, and takes prompt actions should any exceedance of the PM-10 NAAQS, occur in the area. In addition, if there is an exceedance, 35 Il. Adm Code Part U: Additional Control Measures requires the IEPA to identify sources contributing to the exceedance and to request such sources to initiate specific emission reducing

actions. The emission unit(s) causing such an exceedance are determined based on the meteorological conditions prevailing at the time of the exceedance, the IEPA's emissions inventory, and a species analysis of the PM-10 in the filter catch.

In such cases, the IEPA will also attempt to ascertain the possible causes, including whether malfunctions or other unusual operating conditions have occurred. The results of such contact would dictate what further actions IEPA would then take, such as an inspection leading to enforcement action as authorized by Section 4 of the Act, requiring stack testing as authorized by Section 201.282, using Measurement Methods in accordance with Sections 212.107-110, or proposing to the Board a more stringent PM-10 emissions limitation, as necessary.

The completion of this maintenance plan thus fulfills Illinois requirements for allowing redesignation of the Granite City PM-10 NAA to attainment.

#### F. Conformity

##### 1. USEPA Guidance

The State must work with USEPA to show that its SIP provisions are consistent with Section 176(c)(4) of the CAA, transportation and general conformity requirements. The redesignation request should include conformity procedures, if the State already has these procedures in place. Therefore, if a State does not have conformity procedures in place at the time that it submits a redesignation request, the State must commit to follow EPA's conformity regulation upon issuance. If the State submits the redesignation request subsequent to USEPA's issuance of the conformity regulations, and the conformity

requirement became applicable to the area prior to submission, the State must adopt conformity requirements before USEPA can redesignate the area.

## 2. Illinois Response

With regard to transportation conformity, PM-10 emissions were not identified as a significant contributor toward the PM-10 NAA designation. Moreover, the transportation conformity regulations are currently being amended. Until USEPA promulgates final regulations, it cannot act on any State's SIP submittal for Transportation Conformity. In addition, the federal regulations for conformity apply until the State's conformity SIPs are approved by USEPA. Therefore, requiring that these SIPs be fully adopted before this area can be redesignated is unnecessary to protect air quality. This action would not further guarantee that air quality standards would be maintained beyond the measures that the State has already taken. The State commits to following USEPA's conformity regulations until its SIPs are approved.

ATTACHMENT 1.a

Granite City PM10 Data Summary  
(Data in micrograms per cubic meter)

Site Address	Highest 24-hr Samples				Expected Exceedances*	Annual Arithmetic Mean
	1st	2nd	3rd	4th		
<u>1992</u>						
23rd & Madison	91	78	77	77	0.0	41
15th & Madison	106	90	87	84	0.0	50
2420 Nameoki	99	82	82	72	0.0	39
<u>1993</u>						
23rd & Madison	73	72	57	55	0.0	33
15th & Madison	117	101	98	77	0.0	44
2420 Nameoki	61	60	52	52	0.0	29
2044 Washington	81	75	74	73	0.0	40
<u>1994</u>						
23rd & Madison	85	68	57	57	0.0	35
15th & Madison	86	85	82	80	0.0	46**
2420 Nameoki	91	90	63	60	0.0	35
2044 Washington	111	107	104	104	0.0	45
<u>1992-1994 Average</u>						
23rd & Madison					0.0	36
15th & Madison					0.0	47
2420 Nameoki					0.0	34
2044 Washington					0.0	43
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<u>1995</u>						
23rd & Madison	74	74	71	68	0.0	37
15th & Madison	113	102	95	82	0.0	46
2420 Nameoki	78	70	67	65	0.0	31
2044 Washington	118	106	101	95	0.0	41
<u>1993-1995 Average</u>						
23rd & Madison					0.0	35
15th & Madison					0.0	45
2420 Nameoki					0.0	32
2044 Washington					0.0	42

\* Number of expected exceedances were calculated using procedures appearing in 40 CFR 50, Appendix K.

\*\* Annual arithmetic mean was computed based upon 93% annual data capture.